

CLAIMS

What is claimed is:

1. A method of bonding integrated circuit chips and other devices to a liquid crystal display panel, the method comprising the steps of:

applying an anisotropic conductive film to a region of the liquid crystal display panel, the film sized to bond a first integrated circuit chip and an other device to the panel;

placing one of the first integrated circuit chip and the other device on a first area portion of the film;

compressing the one of the first integrated circuit chip and the other device together with the panel.

2. The method according to claim 1, further comprising the steps of:

placing the other one of the first integrated circuit chip and the other device on a second area portion of the film;

compressing the other one of the first integrated circuit chip and the other device together with the panel.

3. The method according to claim 2, further comprising the step of curing the film.

4. The method according to claim 1, wherein the placing step further includes placing the other one of the first integrated circuit chip and the other device on a second area portion of the film and the compressing step further includes compressing the other

one of the first integrated circuit chip and the other device together with the panel at the same time the one of the first integrated chip and the other device is compressed with the panel.

5. The method according to claim 4, further comprising the step of curing the film.
6. The method according to claim 1, wherein the region of the panel comprises a peripheral region.
7. The method according to claim 1, wherein the first integrated circuit chip comprises a first driver integrated circuit chip.
8. The method according to claim 3, wherein the curing step includes heating the anisotropic conductive film to a predetermined temperature.
9. The method according to claim 5, wherein the curing step includes heating the anisotropic conductive film to a predetermined temperature.
10. The method according to claim 1, wherein the anisotropic conductive film is spaced from an edge of the panel.
11. The method according to claim 1, wherein the anisotropic conductive film extends beyond an edge of the panel.

12. The method according to claim 1, wherein the anisotropic conductive film is sized to bond the first integrated circuit chip, a second integrated circuit chip and the other device to the panel, the placing step includes placing one of the first integrated circuit chip, the second integrated chip and the other device on the first area portion of the film, and the compressing step includes compressing the one of the first integrated chip, the second integrated chip and the other device together with the panel.

13. The method according to claim 12, further comprising the steps of:
placing another one of the first integrated circuit chip, the second integrated circuit chip and the other device on a second area portion of the film;
compressing the another one of the first integrated circuit chip, the second integrated circuit chip and the other device together with the panel.

14. The method according to claim 13, further comprising the steps of:
placing the remaining one of the first integrated circuit chip, the second integrated circuit chip and the other device on a third area portion of the film;
compressing the remaining one of the first integrated circuit chip, the second integrated circuit chip and the other device together with the panel.

15. The method according to claim 12, wherein the placing step further includes placing the remaining ones of the first integrated circuit chip, the second integrated circuit chip, and the other device on second and third area portions of the film and the

compressing step further includes compressing the remaining ones of the first integrated circuit chip, the second integrated circuit chip and the other device together with the panel at the same time the one of the first integrated circuit chip, the second integrated circuit chip and the other device is compressed with the panel.

16. The method according to claim 1, wherein the other device is selected from the group consisting of a flexible printed circuit board, a tape carrier package, and a chip-on-film.

17. A liquid crystal display device comprising:

a panel;

a thin film transistor array disposed on a first region of the panel;

a first integrated circuit chip;

a device selected from the group consisting of a flexible printed circuit board, a tape carrier package, and a chip-on-film; and

an anisotropic conductive film bonding the first integrated circuit chip and the device to the second region of the panel.

18. The liquid crystal display device according to claim 17, wherein the second region of the panel comprises a peripheral region.

19. The liquid crystal display device according to claim 17, wherein the first integrated circuit chip comprises a first driver integrated circuit chip.

20. The liquid crystal display device according to claim 17, wherein the anisotropic conductive film is spaced from an edge of the panel.

21. The liquid crystal display device according to claim 17, wherein the anisotropic conductive film extends beyond an edge of the panel.

22. The liquid crystal display device according to claim 17, further comprising a second integrated circuit chip, the anisotropic conductive film bonding the first and second integrated circuit chips and the device to the second region of the panel.

23. A method of manufacturing a liquid crystal display device, the method comprising the steps of:

forming a thin film transistor array on a first region of a liquid crystal display panel;

applying an anisotropic conductive film to a second region of the panel, the film sized to bond a first integrated circuit chip and an other device to the second region of the panel;

placing one of the first integrated circuit chip and the other device on a first area portion of the film;

compressing the one of the first integrated circuit chip and the other device together with the panel.

24. The method according to claim 23, further comprising the steps of:
- placing the other one of the first integrated circuit chip and the other device on a second area portion of the film;
- compressing the other one of the first integrated circuit chip and the other device together with the panel.
25. The method according to claim 24, further comprising the step of curing the film.
26. The method according to claim 23, wherein the placing step further includes placing the other one of the first integrated circuit chip and the other device on a second area portion of the film and the compressing step further includes compressing the other one of the first integrated circuit chip and the other device together with the panel at the same time the one of the first integrated chip and the other device is compressed with the panel.
27. The method according to claim 26, further comprising the step of curing the film.
28. The method according to claim 26, wherein the first region of the panel comprises a pixel region and the second region of the panel comprises a peripheral region.
29. The method according to claim 23, wherein the first integrated circuit chip comprises a first driver integrated circuit chip.

30. The method according to claim 25, wherein the curing step includes heating the anisotropic conductive film to a predetermined temperature.
31. The method according to claim 27, wherein the curing step includes heating the anisotropic conductive film to a predetermined temperature.
32. The method according to claim 23, wherein the anisotropic conductive film is spaced from an edge of the panel.
33. The method according to claim 23, wherein the anisotropic conductive film extends beyond an edge of the panel.
34. The method according to claim 23, wherein the anisotropic conductive film is sized to bond the first integrated circuit chip, a second integrated circuit chip and the other device to the panel, the placing step includes placing one of the first integrated circuit chip, the second integrated chip and the other device on the first area portion of the film, and the compressing step includes compressing the one of the first integrated chip, the second integrated chip and the other device together with the panel.
35. The method according to claim 34, further comprising the steps of:
placing another one of the first integrated circuit chip, the second integrated circuit chip and the other device on a second area portion of the film;

compressing the another one of the first integrated circuit chip, the second integrated circuit chip and the other device together with the panel.

36. The method according to claim 35, further comprising the steps of:

placing the remaining one of the first integrated circuit chip, the second integrated circuit chip and the other device on a third area portion of the film;

compressing the remaining one of the first integrated circuit chip, the second integrated circuit chip and the other device together with the panel.

37. The method according to claim 34, wherein the placing step further includes placing the remaining ones of the first integrated circuit chip, the second integrated circuit chip, and the other device on second and third area portions of the film and the compressing step further includes compressing the remaining ones of the first integrated circuit chip, the second integrated circuit chip and the other device together with the panel at the same time the one of the first integrated circuit chip, the second integrated circuit chip and the other device is compressed with the panel.

38. The method according to claim 23, wherein the other device is selected from the group consisting of a flexible printed circuit board, a tape carrier package, and a chip-on-film.